

***** STN Columbus *****

(FILE 'HOME' ENTERED AT 14:56:30 ON 11 DEC 1997)

FILE 'MEDLINE' ENTERED AT 14:56:38 ON 11 DEC 1997

E HYDRO LYASES/CT

L1 2938 S E9

E SACCHAROMYCES/CT

L2 38378 S E3, E4

L3 145 S L1 AND L2

L4 77716 S CLONING, MOLECULAR/CT

L5 14 S L3 AND L4

L5 ANSWER 1 OF 14 MEDLINE

TI Gene identification using the yeast two-hybrid system.

L5 ANSWER 2 OF 14 MEDLINE

TI The bifunctional DCOH protein binds to HNF1 independently of its 4-alpha-carbinolamine dehydratase activity.

L5 ANSWER 3 OF 14 MEDLINE

TI Roles of the FabA and FabZ beta-hydroxyacyl-acyl carrier protein dehydratases in *Escherichia coli* fatty acid biosynthesis.

L5 ANSWER 4 OF 14 MEDLINE

TI Mutants that show increased sensitivity to hydrogen peroxide reveal an important role for the pentose phosphate pathway in protection of yeast against oxidative stress.

L5 ANSWER 5 OF 14 MEDLINE

TI Sticky-end polymerase chain reaction method for systematic gene disruption in *Saccharomyces cerevisiae*.

L5 ANSWER 6 OF 14 MEDLINE

TI Cloning of the *Candida glabrata* TRP1 and HIS3 genes, and construction of their disruptant strains by sequential integrative transformation.

L5 ANSWER 7 OF 14 MEDLINE

TI Molecular cloning and characterization of the *Schizosaccharomyces pombe* his3 gene for use as a selectable marker.

L5 ANSWER 8 OF 14 MEDLINE

TI Cloning of the dihydroxyacid dehydratase-encoding gene (ILD3) from *Saccharomyces cerevisiae*.

L5 ANSWER 9 OF 14 MEDLINE

TI Molecular genetics in *Saccharomyces kluyveri*: the HIS3 homolog and its use as a selectable marker gene in *S. kluyveri* and *Saccharomyces cerevisiae*.

L5 ANSWER 10 OF 14 MEDLINE

TI Molecular cloning of the imidazole glycerol phosphate dehydratase gene of *Trichoderma harzianum* by genetic complementation in *Saccharomyces cerevisiae* using a direct expression vector.

L5 ANSWER 11 OF 14 MEDLINE

TI Cloning of dapD, aroD and asd of *Leptospira interrogans* serovar icterohaemorrhagiae, and nucleotide sequence of the asd gene.

L5 ANSWER 12 OF 14 MEDLINE

TI Molecular cloning and characterization of the aroD gene encoding 3-dehydroquinate from *Salmonella typhi*.

L5 ANSWER 13 OF 14 MEDLINE

TI Characterization of the aleuA gene and an ARS element from *Mucor circinelloides*.

L5 ANSWER 14 OF 14 MEDLINE

TI Isopropylmalate dehydratase from yeast.

L5 ANSWER 5 OF 14 MEDLINE

AN 96437975 MEDLINE

TI Sticky-end polymerase chain reaction method for systematic gene disruption in *Saccharomyces cerevisiae*.

AU Melfatti M; Gaillardin C; Nicaud J M

CS Institut National Agronomique Paris-Grignon, Laboratoire de Genetique Moleculaire et Cellulaire, INRA CNRS, Thiverval-Grignon, France.

SO YEAST, (1996 Jul) 12 (9) 859-68. Journal code: YEA. ISSN: 0749-503X. CY ENGLAND: United Kingdom DT Journal; Article; (JOURNAL ARTICLE) LA English FS Priority Journals

OS GENBANK-Z46259 EM 9702 EW 19970204

AB We describe a new procedure for the generation of plasmids containing a large promoter and terminator region of a gene of interest, useful for gene disruption. In a two-step polymerase chain reaction (PCR), a fragment, corresponding to the terminator and promoter regions separated by a 16 bp sequence containing a rare restriction site (e.g. *AscI*), is synthesized (T-P fragment). This PCR fragment is cloned in vectors presenting a rare blunt-end cloning site and a yeast marker for selection in *Saccharomyces cerevisiae* (TRP1, HIS3 and KanMX). The final plasmids are used directly for gene disruption after linearization by the enzyme (e.g. *AscI*) specific for the rare restriction site. This approach was used to disrupt three open reading frames identified during the sequencing of COS14-1 from chromosome XIV of *S. cerevisiae*.

CT Check Tags: Support, Non-U.S. Govt

Base Sequence

****Cloning, Molecular: MT, methods****

Deoxyribonucleases, Type II Site-Specific: ME, metabolism

DNA, Fungal: ME, metabolism

Fungal Proteins: GE, genetics

*Genes, Fungal

Genetic Markers

Genetic Vectors

*** Hydro-Lyases: GE, genetics***

Kanamycin Resistance: GE, genetics

Models, Genetic

Molecular Sequence Data

*Mutagenesis

*Polymerase Chain Reaction: MT, methods

****Saccharomyces cerevisiae: GE, genetics****

Selection (Genetics)

Transformation, Genetic

CN EC 3.1.21.- (endodeoxyribonuclease *AscI*); EC 3.1.21.4 (Deoxyribonucleases, Type II Site-Specific); EC 4.2.1. (Hydro-Lyases); EC 4.2.1.19 (imidazole glycerol phosphate dehydratase); 0 (DNA, Fungal); 0 (Fungal Proteins); 0 (Genetic Markers); 0 (Genetic Vectors); 0 (TRP1 protein)

L5 ANSWER 6 OF 14 MEDLINE

AN 96096521 MEDLINE

TI Cloning of the *Candida glabrata* TRP1 and HIS3 genes, and construction of their disruptant strains by sequential integrative transformation.

AU Kitada K; Yamaguchi E; Arisawa M

CS Department of Mycology, Nippon Roche Research Center, Kanagawa, Japan.

SO GENE, (1995 Nov 20) 165 (2) 203-6. Journal code: FOP. ISSN: 0378-1119. CY Netherlands DT Journal; Article; (JOURNAL ARTICLE) LA English FS Priority Journals

OS GENBANK-U31470; GENBANK-U31471 EM 9603

AB The *Candida glabrata* (Cg) TRP1 and HIS3 genes have been isolated by complementation of the *Saccharomyces cerevisiae* (Sc) *trp1* and *his3* mutants, respectively. Cg TRP1 encodes a polypeptide of 217 amino acids (aa), whose aa sequence is 58% identical to that of Sc TRP1. Cg HIS3 encodes a polypeptide of 210 aa, whose aa sequence is 73% identical to that of the Sc HIS3. Both Cg TRP1 and HIS3 were disrupted by sequential integrative transformation where the Sc URA3 was used as a selection marker for transformation. The resulting auxotrophic strain of *his3-* and *trp1-* was used to examine the ability of the Sc genes to complement the Cg mutations; Sc HIS3 and TRP1 complemented the Cg *his3-* and *trp1-* mutations, respectively.

CT Amino Acid Sequence

Base Sequence

*Candida: GE, genetics

*** Cloning, Molecular***

*Fungal Proteins: GE, genetics

*Genes, Structural, Fungal: GE, genetics
 Genetic Complementation Test
 ****Hydro-Lyases: GE, genetics***
 Molecular Sequence Data
 Mutagenesis
 Restriction Mapping
 *** Saccharomyces cerevisiae: GE, genetics***
 Sequence Analysis, DNA
 Sequence Homology, Amino Acid
 Transformation, Genetic

CN EC 4.2.1. (Hydro-Lyases); EC 4.2.1.19 (imidazoleglycerolphosphate dehydratase); 0 (Fungal Proteins); 0 (TRP1 protein)

L5 ANSWER 7 OF 14 MEDLINE

AN 94211206 MEDLINE

TI Molecular cloning and characterization of the *Schizosaccharomyces pombe* his3 gene for use as a selectable marker.

AU Burke J D; Gould K L

CS Department of Cell Biology, School of Medicine, Vanderbilt University, Nashville, TN 37232..

NC GM 47728-01 (NIGMS)

SO MOLECULAR AND GENERAL GENETICS, (1994 Jan) 242 (2) 169-76. Journal code: NGP. ISSN: 0026-8925. CY GERMANY: Germany, Federal Republic of

T Journal; Article; (JOURNAL ARTICLE) LA English FS Priority Journals OS GENBANK-L19523; GENBANK-L19524 EM 9407

AB A DNA fragment which carries the his3 gene of *Schizosaccharomyces pombe* has been isolated and characterized for use as a selectable marker in transformations. The his3 gene encodes the imidazole acetol phosphate transaminase enzyme (E.C.2.6.1.9), which is responsible for converting imidazole acetol-P to histidinol-P in step 8 of histidine biosynthesis. The nucleotide sequences of a 2196 bp gene fragment and a corresponding cDNA clone were determined. Three intron sequences punctuate the 1451 bp coding region which generates a predicted polypeptide of 384 amino acids with a molecular mass of 42736 daltons. Northern analysis of his3 mRNAs indicates that the transcript is approximately 1.6 kb in size. Steady-state levels are down-regulated by nitrogen limitation but are unaffected by histidine starvation. The deduced amino acid sequence was compared to the *Saccharomyces cerevisiae* HIS5, *Escherichia coli* HisC, and *Salmonella typhimurium* HisC proteins, all of which are imidazole acetol phosphate transaminases. The *S. pombe* his3 protein was 49.5% identical to the *S. cerevisiae* HIS5 protein and 21.5% identity was found when all four proteins were compared. The shuttle vector pBG1 was constructed by subcloning the smallest functional region of his3 and the *S. pombe* ars1 sequence into pUC18 for use in transformation of His⁻-*S. pombe* strains. New *S. pombe* strains in which the his3 gene was deleted have also been constructed.

CT Check Tags: Comparative Study; Support, Non-U.S. Gov't; Support,

U.S. Gov't, P.H.S.

Amino Acid Sequence

Base Sequence

*** Cloning, Molecular***

DNA, Fungal: GE, genetics

Escherichia coli: GE, genetics

*Genes, Fungal

Genetic Markers

Histidine: BI, biosynthesis

****Hydro-Lyases: GE, genetics***

Molecular Sequence Data

Restriction Mapping

*** Saccharomyces cerevisiae: GE, genetics***

Salmonella typhimurium: GE, genetics

*Schizosaccharomyces: GE, genetics

Schizosaccharomyces: ME, metabolism

Sequence Homology, Amino Acid

Transcription, Genetic

RN 7006-35-1 (Histidine)

CN EC 4.2.1. (Hydro-Lyases); EC 4.2.1.19 (imidazoleglycerolphosphate dehydratase); 0 (DNA, Fungal); 0 (Genetic Markers)GEN his3

L5 ANSWER 8 OF 14 MEDLINE

AN 94131281 MEDLINE

TI Cloning of the dihydroxyacid dehydratase-encoding gene (ILV3) from *Saccharomyces cerevisiae*.

AU Velasco J A; Cansado J; Pena M C; Kawakami T; Laborda J; Notario V

CS Department of Radiation Medicine, Georgetown University Medical Center, Washington, DC 20007..

SO GENE, (1993 Dec 31) 137 (2) 179-85. Journal code: FOP. ISSN: 0378-1119. CY NetherlandsDT Journal; Article; (JOURNAL ARTICLE) LA English FS Priority Journals

OS GENBANK-L13975; GENBANK-L11589; GENBANK-L11590; GENBANK-L11591; GENBANK-L11592; GENBANK-L11593; GENBANK-L11594; GENBANK-Z15047; GENBANK-Z15048; GENBANK-L24529 EM 9405

AB The biosynthesis of branched-chain amino acids (aa) involves three shared pathways through which pyruvate or alpha-ketobutyrate are converted into alpha-keto acids, precursors of valine, leucine or isoleucine. In eukaryotes, few of these common enzymes have been purified to homogeneity, and the whole complement of biosynthetic genes has not been cloned from a single species. In yeasts, most of these genes (ILV genes) have been cloned and sequenced, with the exception of that coding for dihydroxyacid dehydratase (DAD, EC 4.2.1.9), the third enzyme in the common pathways. We have isolated *Saccharomyces cerevisiae* genomic sequences by hybridization to an oligodeoxynucleotide (oligo) probe designed from a highly conserved domain among bacterial DAD-encoding genes. The cloned sequences have been located to *S. cerevisiae* chromosome X, mapped within 0.4 centiMorgans (cM) of the ilv3 locus, and found to complement the ilv3 mutations of various yeast strains. Nucleotide(nt) and aa sequence analyses of the longest open reading frame (ORF) located within the cloned sequences identified them as the ilv3 gene, which codes for the yeast DAD. With our cloning of ILV3, yeast becomes the only eukaryotic system from which all ILV genes have been cloned, thus allowing direct molecular analyses of their regulation.

L5 ANSWER 9 OF 14 MEDLINE

AN 93289813 MEDLINE

TI Molecular genetics in *Saccharomyces kluyveri*: the HIS3 homolog and its use as a selectable marker gene in *S. kluyveri* and *Saccharomyces cerevisiae*.

AU Weinstock K G; Strathern J N

CS Laboratory of Eukaryotic Gene Expression, ABL-Basic Research Program, NCI-Frederick Cancer Research and Development Center, MD 21702-1201..

SO YEAST, (1993 Apr) 9 (4) 351-61. Journal code: YEA. ISSN: 0749-503X. CY ENGLAND: United Kingdom DT Journal; Article; (JOURNAL ARTICLE) LA English FS Priority Journals

OS GENBANK-Z14125 EM 9309

AB We cloned the *Saccharomyces kluyveri* HIS3 homolog, k-HIS3, and made a partial deletion of the gene. The k-HIS3 gene complemented a HIS3 deletion in *S. cerevisiae*. The DNA sequences of the open reading frames (ORFs) of the HIS3 homologs are 70% identical at the DNA level and 83% identical at the deduced amino acid level. The ORF upstream of the k-HIS3 gene is related to the PET56 gene of *S. cerevisiae* found upstream of the HIS3 gene of *S. cerevisiae*. The ORF downstream from the k-HIS3 gene is not related to the DED1 gene found downstream of the HIS3 gene in *S. cerevisiae*.

CT Amino Acid Sequence

Base Sequence

Chromosome Mapping

*** Cloning, Molecular***

*Genes, Fungal: GE, genetics

Genetic Markers

****Hydro-Lyases: GE, genetics***

Molecular Sequence Data

Mutagenesis

****Saccharomyces: GE, genetics***

*** Saccharomyces cerevisiae: GE, genetics***

Selection (Genetics)

Sequence Analysis, DNA

Transformation, Genetic

Uracil: ME, metabolism

RN 66-22-8 (Uracil)

CN EC 4.2.1. (Hydro-Lyases); EC 4.2.1.19 (imidazoleglycerolphosphate dehydratase); 0 (Genetic Markers)

GEN HIS3; PET56; URA3

L5 ANSWER 10 OF 14 MEDLINE

AN 93024323 MEDLINE

TI Molecular cloning of the imidazoleglycerolphosphate dehydratase gene of *Trichoderma harzianum* by genetic complementation in *Saccharomyces cerevisiae* using a direct expression vector.

AU Goldman G H; Demolder J; Dewaele S; Herrera-Estrella A; Geremia R A; Van Montagu M; Contreras R

CS Laboratorium voor Genetica, Universiteit Gent, Belgium..

SO MOLECULAR AND GENERAL GENETICS, (1992 Sep) 234 (3) 481-8. Journal code: NGP. ISSN: 0026-8925. CY GERMANY: Germany, Federal Republic of DT Journal; Article; (JOURNAL ARTICLE)

LA English FS Priority Journals OS GENBANK-Z11528 EM 9301

AB The *Trichoderma harzianum* imidazoleglycerolphosphate dehydratase gene (*igh*) has been isolated by complementation of a *Saccharomyces cerevisiae* *his3* mutant using a direct expression vector. This *Escherichia coli*-yeast shuttle vector was developed to allow efficient cloning and expression of cDNA libraries. The cDNA is 627 nucleotides long and codes for a protein of 209 amino acids with an apparent molecular mass of 22,466 daltons. The predicted protein sequence showed 63.6%, 58.7%, and 38.4% identity respectively to the corresponding enzymes from *S. cerevisiae*, *Pichia pastoris* and *E. coli*. Northern analysis showed that the expression of the *igh* gene in *T. harzianum* is not inhibited by external histidine and the level of *igh* mRNA was about threefold higher in cells starved of histidine.

CT Check Tags: Support, Non-U.S. Gov't

Amino Acid Sequence

Base Sequence

*** Cloning, Molecular***

Fungal Proteins: GE, genetics

Gene Expression

*Genes, Structural, Fungal

Genetic Complementation Test

Genetic Vectors

****Hydro-Lyases: GE, genetics***

Molecular Sequence Data

RNA, Messenger: GE, genetics

*** *Saccharomyces cerevisiae*: EN, enzymology***

*****Saccharomyces cerevisiae*: GE, genetics***

**Trichoderma*: GE, genetics

CN EC 4.2.1. (Hydro-Lyases); EC 4.2.1.19 (imidazoleglycerolphosphate dehydratase); 0 (Fungal Proteins); 0 (RNA, Messenger)

GEN igh

L5 ANSWER 14 OF 14 MEDLINE

AN 89200982 MEDLINE

TI Isopropylmalate dehydratase from yeast.

AU Kohlhaw G B

SO METHODS IN ENZYMOLOGY, (1988) 166 423-9. Journal code: MVA. ISSN: 0076-6879. CY United States DT Journal; Article; (JOURNAL ARTICLE) LA English FS Priority Journals EM 8907

CT Chromatography, Affinity: MT, methods

*** Cloning, Molecular***

Enzyme Stability

*** Hydro-Lyases: GE, genetics***

****Hydro-Lyases: IP, isolation & purification***

*** Hydro-Lyases: ME, metabolism***

Indicators and Reagents

Kinetics

*****Saccharomyces cerevisiae*: EN, enzymology***

*** *Saccharomyces cerevisiae*: GE, genetics***

Spectrophotometry, Ultraviolet: MT, methods

CN EC 4.2.1. (Hydro-Lyases); EC 4.2.1.33 (3-isopropylmalate dehydratase); 0 (Indicators and Reagents)

=> d his

FILE 'HCAPLUS' ENTERED AT 06:50:37 ON 11 DEC 1997

E WO9635796/PN
L1 1 S E3
E WO9635795/PN
L2 1 S E3
E LAFFEND L/AU
L3 3 S E3,E4
E NAGARAJAN V/AU
L4 141 S E3-E1,E7
E NAKAMURA C/AU
L5 31 S E3,E9-E11
L6 172 S L3-L5
L7 2 S 504-63-2 AND L6
L8 2 S L1,L2,L7

FILE 'REGISTRY' ENTERED AT 06:58:59 ON 11 DEC 1997

L9 1 S 504-63-2
L10 581 S ?DEHYDRATASE?/CNS

FILE 'HCAPLUS' ENTERED AT 07:00:18 ON 11 DEC 1997

SEL RN L8 1-2

FILE 'REGISTRY' ENTERED AT 07:00:23 ON 11 DEC 1997

L11 25 S E1-E25
L12 24 S L11 NOT L9
L13 20 S L12 NOT L10
L14 4 S L13 AND DEHYDROGENASE
L15 585 S L10,L14
L16 16 S L13 NOT L14
L17 8 S L16 AND PNEUMON?
L18 596 S KLEBSIELLA
L19 596 S L17,L18
L20 8 S L16 NOT L19
L21 1049 S ?HYDRATASE?/CNS
L22 1053 S L10,L21,L14
L23 2 S L20 AND GLUCOSE
E C12H22O11/MF
L24 664 S E3
L25 91 S L24 AND GLUCOSE
L26 46 S L25 AND GLUCOPYRAN?
L27 42 S L26 NOT (T OR D)/ELS
L28 37 S L27 NOT (11C# OR 13C# OR 14C# OR C11# OR C13# OR C14# O
L29 2 S L28 AND MALTOSE
L30 8 S 4 O AND L28
L31 7 S L30 NOT 18O
L32 2 S L25 AND 2/NR
E L-GLUCOSE/CN
L33 1 S E3
E DL-GLUCOSE/CN
L34 1 S E3
E C6H12O6/MF
L35 840 S E3
L36 114 S L35 AND GLUCOSE
L37 111 S L36 NOT L23,L33,L34
L38 15 S L37 AND 1/NR
L39 9 S L38 AND OC5/ES
L40 4 S L39 NOT (D OR T)/ELS

L41 1 S L23 NOT OC5/ES
E GLUCOSE/CN
L42 2 S E3
L43 3 S L33,L34,L41,L42
L44 7 S L40,L43

FILE 'HCAPLUS' ENTERED AT 07:12:43 ON 11 DEC 1997

L45 207 S L9/P
L46 6 S L45 AND L22
L47 2 S L45 AND L19
L48 10 S L45 AND L44
L49 3 S L45 AND L31
L50 14 S L46-L49
L51 12 S L50 NOT L8
L52 11 S L51 NOT INTESTINES/TI
E GENE/CW
L53 4 S L45 AND E3,E13,E16,E17
L54 2 S L53 NOT L8
E PLASMID/CW
L55 1 S L45 AND E3,E4
L56 0 S L55 NOT L8
E ASPERGIL/CW
L57 1 S E4
E ASPERGIL/CW
L58 19164 S E4,E9
E BACIL/CW
L59 33392 S E4-E21
E CANDID/CW
L60 15146 S E4,E5,E12
E CLOSTRID/CW
L61 10761 S E4-E11
E DEBARY/CW
L62 492 S E4-E6
E ESCHERI/CW
L63 92603 S E4,E5
E HANSEN/CW
L64 1869 S E8,E9,E10
E KLUYVER/CW
L65 2151 S E4-E6
E KOMAGAT/CW
L66 111 S E4,E5
E METHYLOBACT/CW
L67 704 S E4-E9
E MUCOR/CW
L68 2164 S E3-E7
E PICH1/CW
L69 1670 S E4,E5
E PSEUDOMON/CW
L70 32082 S E4-E9
E SACCHAROMY/CW
L71 39182 S E4-E10
E SALMONEL/CW
L72 14073 S E4
E STREPTOMY/CW
L73 17913 S E2,E4-E6
E TORULOP/CW
L74 1685 S E4,E5
E ENTEROBACT/CW
L75 6256 S E4-E7

E ILYOBACTER/CW
L76 7 S E3
E KLEBSIE/CW
L77 6268 S E2,E4,E5
E LACTOBACIL/CW
L78 8463 S E4-E7
E PELOBACT/CW
L79 44 S E4
L80 34 S L45 AND L57-L79
L81 32 S L80 NOT L8
L82 24 S L81 NOT L52
L83 20 S L82 AND 56-81-5
L84 21 S L82 AND GLYCEROL
L85 21 S L83,L84
L86 3 S L82 NOT L85
L87 2 S L45 AND ?SACCHARID?/IA
L88 2 S L45 AND ?CARBOHYDRATE?/IA
L89 6 S L45 AND SUGAR
L90 2 S L86-L89 NOT L8,L52,L86
L91 1 S L90 NOT INTESTINES/TI
L92 14 S L52,L86,L86
L93 2 S L8 AND L22,L19,L44,L31

FILE 'REGISTRY' ENTERED AT 07:33:54 ON 11 DEC 1997

L94 1 S 2134-29-4
L95 1 S 57657-66-6

FILE 'HCAPLUS' ENTERED AT 07:35:00 ON 11 DEC 1997

L96 37 S L45 AND L94,L95
L97 33 S L96 NOT 56-81-5
L98 32 S L97 NOT GLYCEROL
L99 0 S L98 AND (16 OR 7)/SC,SX
L100 3 S L96 AND (16 OR 7)/SC,SX
L101 2 S L100 NOT L8
SEL HIT RN L93 1-2
SEL HIT RN L92 1-14

FILE 'REGISTRY' ENTERED AT 07:39:47 ON 11 DEC 1997

L102 19 S E1-E19
L103 7 S E20-E26
L104 19 S L102,L103

=> fil reg

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DICTIONARY FILE UPDATES: 10 DEC 97 HIGHEST RN 198266-90-9

TSCA INFORMATION NOW CURRENT THROUGH JUNE 1997

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

=> d ide can l104 1-tot

L104 ANSWER 1 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **185124-25-8** REGISTRY
CN Dehydratase, propanediol (Klebsiella pneumoniae gene pduC) (9CI)
(CA INDEX NAME)
FS PROTEIN SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, TOXLIT, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:55945

L104 ANSWER 2 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **185124-24-7** REGISTRY
CN DNA (Klebsiella pneumoniae alcohol dehydrogenase-like protein gene)
(9CI) (CA INDEX NAME)
OTHER NAMES:
CN GenBank I43899
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, GENBANK, TOXLIT, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:55945

L104 ANSWER 3 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **185124-23-6** REGISTRY
CN DNA (Klebsiella pneumoniae propanediol dehydratase gene pduC plus
3'-flank) (9CI) (CA INDEX NAME)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, TOXLIT, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:55945

L104 ANSWER 4 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **185071-68-5** REGISTRY
CN DNA (Klebsiella pneumoniae clone pHK28-26 gene dhaB3) (9CI) (CA
INDEX NAME)
OTHER CA INDEX NAMES:

CN Deoxyribonucleic acid (Klebsiella pneumoniae clone pHK28-26 gene dhaB3)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:58953

L104 ANSWER 5 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **185071-67-4** REGISTRY
CN DNA (Klebsiella pneumoniae clone pHK28-26 gene dhaB2) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Deoxyribonucleic acid (Klebsiella pneumoniae clone pHK28-26 gene dhaB2)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:58953

L104 ANSWER 6 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **185071-66-3** REGISTRY
CN DNA (Klebsiella pneumoniae clone pHK28-26 gene dhaB1) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Deoxyribonucleic acid (Klebsiella pneumoniae clone pHK28-26 gene dhaB1)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:58953

L104 ANSWER 7 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **185071-65-2** REGISTRY
CN DNA (Klebsiella pneumoniae clone pHK28-26 gene dhaT) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Deoxyribonucleic acid (Klebsiella pneumoniae clone pHK28-26 gene dhaT)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***

1 REFERENCES IN FILE CA (1967 TO DATE)

1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:58953

L104 ANSWER 8 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN 185071-64-1 REGISTRY

CN DNA (Klebsiella pneumoniae clone pHK28-26 gene dhaR) (9CI) (CA
INDEX NAME)

OTHER CA INDEX NAMES:

CN Deoxyribonucleic acid (Klebsiella pneumoniae clone pHK28-26 gene dhaR)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***

1 REFERENCES IN FILE CA (1967 TO DATE)

1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:58953

L104 ANSWER 9 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN 185071-63-0 REGISTRY

CN DNA (Klebsiella pneumoniae clone pHK28-26 gene dhaD) (9CI) (CA
INDEX NAME)

OTHER CA INDEX NAMES:

CN Deoxyribonucleic acid (Klebsiella pneumoniae clone pHK28-26 gene dhaD)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***

1 REFERENCES IN FILE CA (1967 TO DATE)

1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:58953

L104 ANSWER 10 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN 185071-62-9 REGISTRY

CN DNA (Klebsiella pneumoniae clone pHK28-26 gene dhaK) (9CI) (CA

INDEX NAME)
OTHER CA INDEX NAMES:
CN Deoxyribonucleic acid (Klebsiella pneumoniae clone pHK28-26 gene dhaK)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:58953

L104 ANSWER 11 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **185071-61-8** REGISTRY
CN DNA (Klebsiella pneumoniae clone pHK28-26 gene dhaK plus gene dhaD plus gene dhaR plus gene dhaT plus gene gene dhaB1 plus gene dhaB2 plus gene dhaB3 plus flanks) (9CI) (CA INDEX NAME)
OTHER CA INDEX NAMES:
CN Deoxyribonucleic acid (Klebsiella pneumoniae clone pHK28-26 gene dhaK plus gene dhaD plus gene dhaR plus gene dhaT plus gene gene dhaB1 plus gene dhaB2 plus gene dhaB3 plus 5'- and 3'-flanking region fragment)
FS NUCLEIC ACID SEQUENCE
MF Unspecified
CI MAN
SR CA
LC STN Files: CA, CAPLUS, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
*** USE 'SQD' OR 'SQIDE' FORMATS TO DISPLAY SEQUENCE ***
1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 126:58953

L104 ANSWER 12 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN **81611-70-3** REGISTRY
CN Dehydrogenase, 1,3-propanediol (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 1,3-Propanediol dehydrogenase
CN 1,3-Propanediol oxidoreductase
CN Trimethylene glycol dehydrogenase
MF Unspecified
CI MAN
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, CA, CAPLUS, TOXLIT, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
23 REFERENCES IN FILE CA (1967 TO DATE)
23 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 127:288844

REFERENCE 2: 127:231098

REFERENCE 3: 127:202688
REFERENCE 4: 126:58953
REFERENCE 5: 126:6520
REFERENCE 6: 125:190307
REFERENCE 7: 125:5215
REFERENCE 8: 124:46914
REFERENCE 9: 123:280485
REFERENCE 10: 123:138590

L104 ANSWER 13 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN **9077-68-3** REGISTRY

CN Dehydratase, glycerol (9CI) (CA INDEX NAME)

OTHER NAMES:

CN Coenzyme-B12-dependent glycerol dehydratase

CN E.C. 4.2.1.30

CN Glycerol dehydrase

CN Glycerol dehydratase

MF Unspecified

CI MAN

LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, CA, CAPLUS, EMBASE,
TOXLIT, USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

59 REFERENCES IN FILE CA (1967 TO DATE)

59 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 127:290099
REFERENCE 2: 127:202688
REFERENCE 3: 127:92076
REFERENCE 4: 126:58953
REFERENCE 5: 126:30403
REFERENCE 6: 126:6520
REFERENCE 7: 125:267010
REFERENCE 8: 125:239729
REFERENCE 9: 124:311990
REFERENCE 10: 124:46914.

L104 ANSWER 14 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN **9031-72-5** REGISTRY

CN Dehydrogenase, alcohol (9CI) (CA INDEX NAME)

OTHER NAMES:

CN ADH

CN ADH (enzyme)
CN Alcohol dehydrogenase
CN Alcohol dehydrogenase (NAD)
CN Aliphatic alcohol dehydrogenase
CN E.C. 1.1.1.1
CN Ethanol dehydrogenase
CN NAD-dependent alc. dehydrogenase
CN NAD-dependent alcohol dehydrogenase
CN NAD-specific aromatic alcohol dehydrogenase
CN NADH-alcohol dehydrogenase
CN NADH-aldehyde reductase
CN Phenylethanol dehydrogenase
CN Primary alcohol dehydrogenase
DR 9035-70-5, 106946-91-2
MF Unspecified
CI MAN
LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, CA, CABA,
CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB,
CIN, CJACS, CSCHEM, EMBASE, IFICDB, IFIPAT, IFIUDB, MSDS-OHS, PNI,
PROMT, TOXLINE, TOXLIT, USPATFULL
Other Sources: EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

8017 REFERENCES IN FILE CA (1967 TO DATE)

213 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

8023 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 127:330725
REFERENCE 2: 127:328812
REFERENCE 3: 127:328620
REFERENCE 4: 127:328526
REFERENCE 5: 127:328342
REFERENCE 6: 127:328285
REFERENCE 7: 127:328272
REFERENCE 8: 127:328198
REFERENCE 9: 127:327659
REFERENCE 10: 127:318155

L104 ANSWER 15 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN **9028-14-2** REGISTRY

CN Dehydrogenase, glycerol (9CI) (CA INDEX NAME)

OTHER NAMES:

CN E.C. 1.1.1.6
CN Glycerin dehydrogenase
CN Glycerol dehydrogenase
CN Glycerol-NAD 2-oxidoreductase
CN NAD-linked glycerol dehydrogenase
CN NAD-specific glycerol dehydrogenase
MF Unspecified

CI MAN
LC STN Files: AGRICOLA, BIOBUSINESS, BIOSIS, CA, CABA, CAPLUS,
CASREACT, CHEMCATS, CHEMLIST, CJACS, CSCHEM, EMBASE, TOXLIT,
USPATFULL
Other Sources: EINECS**, TSCA**
(**Enter CHEMLIST File for up-to-date regulatory information)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

247 REFERENCES IN FILE CA (1967 TO DATE)
6 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
247 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 127:275142
REFERENCE 2: 127:202688
REFERENCE 3: 126:261363
REFERENCE 4: 126:168818
REFERENCE 5: 126:128649
REFERENCE 6: 126:114565
REFERENCE 7: 126:58953
REFERENCE 8: 125:319970
REFERENCE 9: 125:296350
REFERENCE 10: 125:273901

L104 ANSWER 16 OF 19 REGISTRY COPYRIGHT 1997 ACS
RN 9026-90-8 REGISTRY
CN Dehydratase, propanediol (9CI) (CA INDEX NAME)
OTHER NAMES:

CN 1,2-Propanediol dehydratase
CN Adenosylcobalamin-dependent diol dehydrase
CN Coenzyme B12-dependent diol dehydrase
CN Coenzyme B12-dependent diol dehydratase
CN Dehydratase, diol
CN Diol dehydrase
CN Diol dehydratase
CN E.C. 4.2.1.28
CN meso-2,3-Butanediol dehydrase
CN Propanediol dehydrase
CN Propanediol dehydratase
MF Unspecified

CI MAN
LC STN Files: BIOBUSINESS, BIOSIS, CA, CAPLUS, CJACS, EMBASE, TOXLIT,
USPATFULL

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

146 REFERENCES IN FILE CA (1967 TO DATE)
146 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 127:327369
REFERENCE 2: 127:201834

REFERENCE 3: 127:132630
REFERENCE 4: 127:92076
REFERENCE 5: 126:153522
REFERENCE 6: 126:86420
REFERENCE 7: 126:58953
REFERENCE 8: 126:55945
REFERENCE 9: 126:30403
REFERENCE 10: 125:137449

L104 ANSWER 17 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN 504-63-2 REGISTRY

CN 1,3-Propanediol (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN .beta.-Propylene glycol

CN .omega.-Propanediol

CN 1,3-Dihydroxypropane

CN 1,3-Propylene glycol

CN 1,3-Propylenediol

CN 2-Deoxyglycerol

CN PG

CN Trimethylene glycol

FS 3D CONCORD

MF C3 H8 O2

CI COM

LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, BEILSTEIN*, BIOBUSINESS,
BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX,
CHEMLIST, CBNB, CIN, CJACS, CSCHEM, CSNB, DETHERM*, DDFU, DIPPR*,
DRUGU, EMBASE, GMELIN*, HODOC*, IFICDB, IFIPAT, IFIUDB, MEDLINE,
MRCK*, MSDS-OHS, NAPRALERT, NIOSHTIC, PIRA, PROMT, RTECS*,
SPECINFO, TOXLINE, TOXLIT, TRCTHERMO*, TULSA, USPATFULL, VTB
(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

HO-CH₂-CH₂-CH₂-OH

2484 REFERENCES IN FILE CA (1967 TO DATE)

137 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

2491 REFERENCES IN FILE CAPLUS (1967 TO DATE)

4 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 127:339403
REFERENCE 2: 127:334644
REFERENCE 3: 127:331293
REFERENCE 4: 127:325605

REFERENCE 5: 127:320239
REFERENCE 6: 127:320104
REFERENCE 7: 127:318743
REFERENCE 8: 127:318661
REFERENCE 9: 127:316491
REFERENCE 10: 127:307272

L104 ANSWER 18 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN 69-79-4 REGISTRY

CN D-Glucose, 4-O-.alpha.-D-glucopyranosyl- (6CI, 9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Maltose (8CI)

OTHER NAMES:

CN 4-O-.alpha.-D-Glucopyranosyl-D-glucose

CN D-(+)-Maltose

CN D-Maltose

CN Finetose

CN Malt sugar

CN Maltobiose

CN Maltodiose

CN Sanmalt

CN Sanmalt S

CN Sunmalt

AR 16984-36-4

FS STEREOSEARCH

DR 73824-72-3, 77072-48-1

MF C12 H22 O11

CI COM

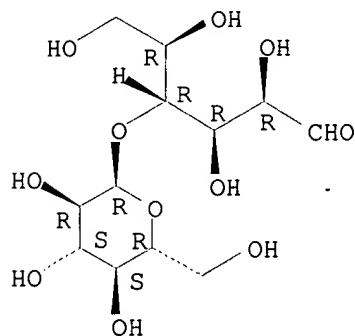
LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, BEILSTEIN*, BIOBUSINESS, BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMLIST, CBNB, CIN, CJACS, CSCHEM, DETHERM*, DDFU, DRUGU, EMBASE, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS, NIOSHTIC, PIRA, PNI, PROMT, RTECS*, SPECINFO, TOXLINE, TOXLIT, TULSA, USAN, USPATFULL

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.



7661 REFERENCES IN FILE CA (1967 TO DATE)
298 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
7668 REFERENCES IN FILE CAPLUS (1967 TO DATE)
5 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 127:341229
REFERENCE 2: 127:336548
REFERENCE 3: 127:330403
REFERENCE 4: 127:329498
REFERENCE 5: 127:329038
REFERENCE 6: 127:328310
REFERENCE 7: 127:328195
REFERENCE 8: 127:327212
REFERENCE 9: 127:322763
REFERENCE 10: 127:319179

L104 ANSWER 19 OF 19 REGISTRY COPYRIGHT 1997 ACS

RN 50-99-7 REGISTRY

CN D-Glucose (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN (+)-Glucose
CN Anhydrous dextrose
CN Cartose
CN Cerelose
CN Corn sugar
CN D(+)-Glucose
CN Dextropur
CN Dextrose
CN Dextrosol
CN Glucolin
CN Glucose
CN Glucosteril
CN Grape sugar
CN Staleydex 111
CN Staleydex 333
CN Sugar, grape
CN Tabfine 097(HS)

FS STEREOSEARCH

DR 8012-24-6, 8030-23-7, 162222-91-5, 50933-92-1, 80206-31-1

MF C6 H12 O6

CI COM

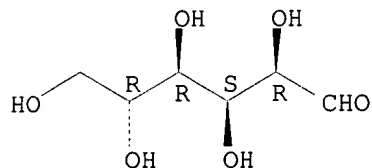
LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, BEILSTEIN*, BIOBUSINESS,
BIOSIS, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CEN,
CHEMCATS, CHEMINFORMRX, CHEMLIST, CBNB, CHEMSAFE, CIN, CJACS,
CSCHEM, CSNB, DETHERM*, DDFU, DIPPR*, DRUGU, EMBASE, GMELIN*,
HSDB*, IFICDB, IFIPAT, IFIUDB, IPA, MEDLINE, MRCK*, MSDS-OHS,
NAPRALERT, NIOSHTIC, PDLCOM*, PIRA, PNI, PROMT, RTECS*, SPECINFO,
TOXLINE, TOXLIT, TULSA, ULIDAT, USAN, USPATFULL, VETU, VTB

(*File contains numerically searchable property data)

Other Sources: DSL**, EINECS**, TSCA**

(**Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.



92697 REFERENCES IN FILE CA (1967 TO DATE)
1513 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
92786 REFERENCES IN FILE CAPLUS (1967 TO DATE)
14 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 127:341229
REFERENCE 2: 127:341224
REFERENCE 3: 127:341210
REFERENCE 4: 127:336680
REFERENCE 5: 127:336657
REFERENCE 6: 127:336593
REFERENCE 7: 127:336581
REFERENCE 8: 127:336548
REFERENCE 9: 127:336547
REFERENCE 10: 127:336324

=> fil hcaplus

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FILE COVERS 1967 - 11 Dec 1997 VOL 127 ISS 24
FILE LAST UPDATED: 11 Dec 1997 (971211/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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'BI AB' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> d 193 all 1-2

L93 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 1997 ACS
AN 1997:38796 HCAPLUS
DN 126:55945
TI Production of 1,3-propanediol from glycerol by recombinant bacteria
expressing recombinant diol dehydratase
IN **Nagarajan, Vasantha; Nakamura, Charles Edwin**
PA E.I. Du Pont De Nemours and Company, USA; Nagarajan, Vasantha;
Nakamura, Charles Edwin
SO PCT Int. Appl., 47 pp.
CODEN: PIXXD2
PI **WO 9635795 A1** 961114
DS W: AL, AU, BB, BG, BR, CA, CN, CZ, EE, GE, HU, IS, JP, KP, KR, LK,
LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT,
UA, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB,
GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG
AI WO 96-US6163 960502
PRAI US 95-440377 950512
DT Patent
LA English
IC ICM C12N015-60
ICS C12N015-53; C12P007-18; C12N009-04; C12N009-88; C12N015-74;
C12N015-79; C12N001-21; C12N001-19
CC 3-2 (Biochemical Genetics)
Section cross-reference(s): 7, 10
AB A process is provided for the bioconversion of glycerol to
1,3-propanediol in which genes from a bacteria known to possess a
diol dehydratase enzyme for 1,2-propanediol degrdn. are cloned into
a bacterial host and the host is grown in the presence of glycerol;
expression of the foreign genes in the host cell facilitates the
enzymic conversion of glycerol to 1,3-propanediol which is isolated
from the culture. An example includes gene pduC diol dehydratase of
Klebsiella pneumoniae. The sequence of gene pduC is included.
ST gene pduC diol dehydratase sequence Klebsiella; propanediol prepn
diol dehydratase recombinant bacteria
IT Bacteria (Eubacteria)
Citrobacter
Clostridium
Klebsiella pneumoniae
Klebsiella
Salmonella
(diol dehydratase; prodn. of 1,3-propanediol from glycerol by
recombinant bacteria expressing recombinant diol dehydratase)
IT Bacillus licheniformis
Bacillus subtilis
Bacillus
Escherichia coli
Komagataella pastoris
Pichia
Saccharomyces
(host; prodn. of 1,3-propanediol from glycerol by recombinant
bacteria expressing recombinant diol dehydratase)
IT Genes (microbial)
RL: BPR (Biological process); BUU (Biological use, unclassified);
CAT (Catalyst use); PRP (Properties); BIOL (Biological study); PROC

- (Process); USES (Uses)
(pduC; prodn. of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase)
- IT Cosmids
DNA sequences
Protein sequences
(prodn. of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase)
- IT Genes (microbial)
RL: BPR (Biological process); BUU (Biological use, unclassified); CAT (Catalyst use); PRP (Properties); BIOL (Biological study); PROC (Process); USES (Uses)
(prodn. of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase)
- IT **185124-25-8P**
RL: BPN (Biosynthetic preparation); BUU (Biological use, unclassified); CAT (Catalyst use); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)
(amino acid sequence; prodn. of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase)
- IT **185124-23-6 185124-24-7**
RL: BPR (Biological process); BUU (Biological use, unclassified); CAT (Catalyst use); PRP (Properties); BIOL (Biological study); PROC (Process); USES (Uses)
(nucleotide sequence; prodn. of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase)
- IT **504-63-2P, 1,3-Propanediol**
RL: BPN (Biosynthetic preparation); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation)
(prepn.; prodn. of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase)
- IT **9026-90-8P, Diol dehydratase 9031-72-5P, Alcohol dehydrogenase**
RL: BPN (Biosynthetic preparation); BUU (Biological use, unclassified); CAT (Catalyst use); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)
(prodn. of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase)
- IT **50-99-7, Glucose, biological studies 56-81-5, Glycerol, biological studies 57-55-6, 1,2-Propanediol, biological studies 107-21-1, Ethylene glycol, biological studies 513-85-9, 2,3-Butanediol**
RL: BPR (Biological process); RCT (Reactant); BIOL (Biological study); PROC (Process)
(prodn. of 1,3-propanediol from glycerol by recombinant bacteria expressing recombinant diol dehydratase)
- L93 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 1997 ACS
AN 1997:34085 HCAPLUS
DN 126:58953
TI Bioconversion of a fermentable carbon source to 1,3-propanediol by a single microorganism expressing a foreign glycerol or diol dehydratase gene
IN Laffend, Lisa Anne; Nagarajan, Vasantha; Nakamura, Charles Edwin
PA E.I. Du Pont De Nemours and Company, USA; Genencor International, Inc.; Laffend, Lisa Anne; Nagarajan, Vasantha; Nakamura, Charles Edwin

SO PCT Int. Appl., 109 pp.
CODEN: PIXXD2

PI WO 9635796 A1 961114

DS W: AL, AU, BB, BG, BR, CA, CN, CZ, EE, GE, HU, IS, JP, KP, KR, LK,
LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT,
UA, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB,
GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG

AI WO 96-US6705 960510

PRAI US 95-440293 950512

DT Patent

LA English

IC ICM C12N015-60
ICS C12P007-18; C12N009-88; C12N015-74; C12N001-21; C12N001-19;
C12N015-79

CC 16-5 (Fermentation and Bioindustrial Chemistry)

AB A process is provided for the bioconversion of a carbon substrate,
preferably glucose, to 1,3-propanediol by a single organism
utilizing microorganisms contg. the genes encoding for an active
glycerol or diol dehydratase enzyme. Specifically, the glycerol
dehydratase gene of Klebsiella pneumoniae is used to prep. a
transgenic microorganism capable of forming 1,3-propanediol from
glucose in high yield. A cosmid covering the dha regulon of K.
pneumoniae was cloned and the gene for the dehydratase (dhaB1,
dhaB2, dhaB3) and the propanediol dehydrogenase were cloned and
expressed in a variety of prokaryotic and eukaryotic microbial hosts
with the manuf. of the propanediol from glucose or maltose
demonstrated.

ST propanediol manuf transgenic microorganism; diol dehydratase gene
propanediol manuf; glycerol dehydratase gene propanediol manuf

IT Aspergillus
Aspergillus niger
Bacillus (bacterium genus)
Bacillus licheniformis
Bacillus subtilis
Candida
Clostridium pasteurianum
Debaryomyces
Escherichia coli
Hansenula
Kluyveromyces
Komagataella pastoris
Methylobacter
Mucor
Pichia
Pseudomonas
Pseudomonas aeruginosa
Saccharomyces
Saccharomyces cerevisiae
Salmonella
Streptomyces
Streptomyces lividans
Torulopsis
(1,3-propanediol manuf. with transgenic; bioconversion of
fermentable carbon source to 1,3-propanediol by single
microorganism expressing foreign glycerol or diol dehydratase
gene)

IT Lactobacillus reuteri
(1,3-propanediol manuf. with; bioconversion of fermentable carbon

- source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Fermentation
(1,3-propanediol; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Regulons
(dha, of Klebsiella, expression in Escherichia coli of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Genes (microbial)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(dhaB1, for glycerol dehydratase subunit of Klebsiella, cloning and expression of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Genes (microbial)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(dhaB2, for glycerol dehydratase subunit of Klebsiella, cloning and expression of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Genes (microbial)
RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(dhaB3, for glycerol dehydratase subunit of Klebsiella, cloning and expression of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Genes (microbial)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(dhaD of Klebsiella pneumoniae, nucleotide sequence of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Genes (microbial)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(dhaK of Klebsiella pneumoniae, nucleotide sequence of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Genes (microbial)
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(dhaR of Klebsiella pneumoniae, nucleotide sequence of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Genes (microbial)
RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(dhaT, for 1,3-propanediol dehydrogenase of Klebsiella; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol

- dehydratase gene)
- IT Genes (microbial)
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(glpR, insertional inactivation in *Pseudomonas* of; bioconversion
of fermentable carbon source to 1,3-propanediol by single
microorganism expressing foreign glycerol or diol dehydratase
gene)
- IT *Clostridium*
Enterobacter
Ilyobacter
Klebsiella
Lactobacillus
Pelobacter
(glycerol dehydratase genes of, in manuf. of 1,3-propanediol;
bioconversion of fermentable carbon source to 1,3-propanediol by
single microorganism expressing foreign glycerol or diol
dehydratase gene)
- IT *Klebsiella pneumoniae*
(glycerol dehydratase of, gene for; bioconversion of fermentable
carbon source to 1,3-propanediol by single microorganism
expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pAEX:B1+B2, dhaB1 and dhaB2 genes on, expression in *Aspergillus*
of; bioconversion of fermentable carbon source to 1,3-propanediol
by single microorganism expressing foreign glycerol or diol
dehydratase gene)
- IT Plasmids
(pAEX:B3+T, dhaB3 and dhaT genes on, expression in *Aspergillus*
of; bioconversion of fermentable carbon source to 1,3-propanediol
by single microorganism expressing foreign glycerol or diol
dehydratase gene)
- IT Plasmids
(pAH24, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in
transgenic microorganisms of; bioconversion of fermentable carbon
source to 1,3-propanediol by single microorganism expressing
foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pDT10, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in
transgenic *Pseudomonas* of; bioconversion of fermentable carbon
source to 1,3-propanediol by single microorganism expressing
foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pDT13, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in
transgenic *Streptomyces* of; bioconversion of fermentable carbon
source to 1,3-propanediol by single microorganism expressing
foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pDT14, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in
transgenic *Streptomyces* of; bioconversion of fermentable carbon
source to 1,3-propanediol by single microorganism expressing
foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pDT9, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in
transgenic *Pseudomonas* of; bioconversion of fermentable carbon
source to 1,3-propanediol by single microorganism expressing
foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pKP4, glycerol dehydratase genes of *Klebsiella pneumoniae* on,
expression in *Escherichia coli* of; bioconversion of fermentable

- carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pM24, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in transgenic Bacillus of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pM25, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in transgenic Bacillus of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pM26, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in transgenic Bacillus of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pM27, dhaT, dhaB1, dhaB2, and dhaB3 genes on, expression in transgenic Bacillus of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pMCK10, dhaB1 gene, expression in Saccharomyces of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pMCK20, dhaB3 gene, expression in Saccharomyces of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pMCK21, dhaB2 gene, expression in Saccharomyces of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pMP19, dhaB1 gene on, expression in Pichia of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pMP20, dhaB2 gene on, expression in Pichia of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pMP21, dhaB1 and dhaB2 genes on, expression in Pichia of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pMP22, dhaT and dhaB3 genes on, expression in Pichia of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT Plasmids
(pMP24, dhaT and dhaB3 genes on, expression in Pichia of;

- bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **69-79-4, Maltose**
 RL: BUU (Biological use, unclassified); RCT (Reactant); BIOL (Biological study); USES (Uses)
 (1,3-propanediol manuf. from, with transgenic *Aspergillus*; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **50-99-7, D-Glucose, reactions**
 RL: RCT (Reactant)
 (1,3-propanediol manuf. from; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **9028-14-2, Glycerol dehydrogenase**
 RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
 (dhaD gene of *Klebsiella*, nucleotide sequence of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **57657-66-6, Dihydroxyacetone kinase**
 RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)
 (dhaK gene of *Klebsiella*, nucleotide sequence of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **81611-70-3, 1,3-Propanediol dehydrogenase**
 RL: BSU (Biological study, unclassified); BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
 (dhaT gene for, of *Klebsiella*; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **9026-90-8, Diol dehydratase 9077-68-3, Glycerol dehydratase**
 RL: CAT (Catalyst use); USES (Uses)
 (in 1,3-propanediol manuf. from carbon substrates; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **504-63-2P, 1,3-Propanediol**
 RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
 (manuf. of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **2134-29-4P, 3-Hydroxypropionaldehyde**
 RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
 (manuf. with transgenic *Bacillus* of; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)
- IT **185071-61-8 185071-62-9 185071-63-0 185071-64-1 185071-65-2 185071-66-3 185071-67-4 185071-68-5**
 RL: BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); USES (Uses)

(nucleotide sequence; bioconversion of fermentable carbon source to 1,3-propanediol by single microorganism expressing foreign glycerol or diol dehydratase gene)

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- L92 ANSWER 1 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1997:517535 HCAPLUS
DN 127:123605
TI Metabolic engineering of an improved 1,3-propanediol fermentation
(*Klebsiella pneumoniae*, *Bacillus licheniformis*)
AU Skraly, Frank Anthony
CS Univ. of Wisconsin, Madison, WI, USA
SO (1997) 221 pp. Avail.: UMI, Order No. DA9716075
From: Diss. Abstr. Int., B 1997, 58(3), 1414
DT Dissertation
LA English
AB Unavailable
IT **504-63-2P**, 1,3-Propanediol
RL: BPR (Biological process); IMF (Industrial manufacture); BIOL
(Biological study); PREP (Preparation); PROC (Process)
(metabolic engineering of improved 1,3-propanediol fermn. with
Klebsiella pneumoniae and *Bacillus licheniformis*)
IT **50-99-7**, Glucose, uses
RL: BPR (Biological process); NUU (Nonbiological use, unclassified);
BIOL (Biological study); PROC (Process); USES (Uses)
(metabolic engineering of improved 1,3-propanediol fermn. with
Klebsiella pneumoniae and *Bacillus licheniformis*)
- L92 ANSWER 2 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1997:459670 HCAPLUS
DN 127:160597
TI Shifts in pH affect the maltose/glycerol co-fermentation by
Lactobacillus reuteri
AU De Valdez, G.F.; Ragout, A.; Bruno-Barcena, J.M.; Diekmann, H.;
Sineriz, F.
CS CERELA, Tucuman, 4000- S.M., Argent.
SO Biotechnol. Lett. (1997), 19(7), 645-649
CODEN: BILED3; ISSN: 0141-5492
PB Chapman and Hall
DT Journal
LA English
AB In aerated cultures of *Lactobacillus reuteri* using maltose/glycerol,
lactate was the main product followed by acetate at all pH (4.7, 5.5
and 6.5) tested while anaerobic cultures produced 1,3-propanediol
besides lactate, acetate and ethanol. 1,3-Propanediol was the main
product at pH 5.5 and 6.5. The high amt. of acetate and the low
concn. of ethanol found in anaerobic cultures was closely related to
the synthesis of 1,3-propanediol.
IT **504-63-2P**, 1,3-Propanediol
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP
(Preparation)
(shifts in pH affect maltose/glycerol co-fermn. by *Lactobacillus*
reuteri)
IT **69-79-4**, Maltose
RL: BPR (Biological process); BIOL (Biological study); PROC
(Process)
(shifts in pH affect maltose/glycerol co-fermn. by *Lactobacillus*

reuteri)

L92 ANSWER 3 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1997:6102 HCAPLUS
DN 126:30403
TI Process for making 1,3-propanediol from carbohydrates using mixed microbial cultures
IN Haynie, Sharon Loretta; Wagner, Lorraine Winona
PA E.I. Du Pont De Nemours and Company, USA; Haynie, Sharon Loretta; Wagner, Lorraine Winona
SO PCT Int. Appl., 30 pp.
CODEN: PIXXD2
PI WO 9635799 A1 961114
DS W: AL, AU, BB, BG, BR, CA, CN, CZ, EE, GE, HU, IS, JP, KP, KR, LK, LR, LT, LV, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG
AI WO 96-US6161 960502
PRAI US 95-440379 950512
DT Patent
LA English
AB The present invention provides a process for the biotransformation of a carbohydrate C source to 1,3-propanediol using mixed yeast and bacterial cultures wherein the carbohydrate is 1st fermented to glycerol by the yeast cell and then converted to 1,3-propanediol by the bacterial cell contg. an active diol or glycerol dehydratase enzyme. In this process both the yeast and bacterial cultures are supported on the same C source and 1,3-propanediol is isolated from the media.
IT **504-63-2P**, 1,3-Propanediol
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(making 1,3-propanediol from carbohydrates using mixed microbial cultures)
IT **50-99-7**, Glucose, biological studies **69-79-4**, Maltose
RL: BPR (Biological process); RCT (Reactant); BIOL (Biological study); PROC (Process)
(making 1,3-propanediol from carbohydrates using mixed microbial cultures)
IT **9026-90-8**, Diol dehydratase **9077-68-3**, Glycerol dehydratase
RL: CAT (Catalyst use); USES (Uses)
(making 1,3-propanediol from carbohydrates using mixed microbial cultures)

L92 ANSWER 4 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1996:722464 HCAPLUS
DN 126:6520
TI Physiologic mechanisms involved in accumulation of 3-hydroxypropionaldehyde during fermentation of glycerol by Enterobacter agglomerans
AU Barbirato, Fabien; Soucaille, Philippe; Bories, Andre
CS Inst. Natl. Rech. Agron., Lab. Biotechnol. Environ., Narbonne, 11100, Fr.
SO Appl. Environ. Microbiol. (1996), 62(12), 4405-4409
CODEN: AEMIDF; ISSN: 0099-2240
PB American Society for Microbiology

- DT Journal
LA English
AB When grown in 700 mM glycerol within the pH range 6.0-7.5, anaerobic pH-regulated cultures of *E. agglomerans* exhibited an extracellular accumulation of 3-hydroxypropionaldehyde (I). This phenomenon, which causes ferment. cessation, occurred earlier when pH was low. In contrast, substrate consumption was complete at pH 8. Levels of glycerol-catabolizing enzymes, i.e., glycerol dehydrogenase and dihydroxyacetone kinase for the oxidative route and glycerol dehydratase and 1,3-propanediol dehydrogenase for the reductive route, as well as the nucleotide pools were detd. periodically in the pH 7- and pH 8-regulated cultures. A NAD/NADH ratio of 1.7 was correlated with the beginning of the prodn. of the inhibitory metabolite. Further accumulation was dependent on the ratio of glycerol dehydratase activity to 1,3-propanediol dehydrogenase activity. For a ratio >1, I was produced until ferment. ceased, which occurred for the pH 7-regulated culture. At pH 8, a value <1 was noticed and I accumulation was transient, while the NAD/NADH ratio decreased. The low rate of glycerol dissimilation following the appearance of I in the culture medium was attributed to the strong inhibitory effect exerted by I on glycerol dehydrogenase activity.
- IT **504-63-2P**, 1,3-Propanediol
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(physiol. mechanisms involved in accumulation of 3-hydroxypropionaldehyde during ferment. of glycerol by *Enterobacter agglomerans*)
- IT **9077-68-3**, Glycerol dehydratase **81611-70-3**, 1,3-Propanediol dehydrogenase
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)
(physiol. mechanisms involved in accumulation of 3-hydroxypropionaldehyde during ferment. of glycerol by *Enterobacter agglomerans*)
- L92 ANSWER 5 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1996:204684 HCAPLUS
DN 125:8603
TI Fermentation of glycerol to 1,3-propanediol. Use of cosubstrates
AU Biebl, H.; Marten, S.
CS Gesellschaft fuer Biotechnologische Forschung mbH, Braunschweig, D-38124, Germany
SO Appl. Microbiol. Biotechnol. (1995), 44(1-2), 15-19
CODEN: AMBIDG; ISSN: 0175-7598
- DT Journal
LA English
AB Three fermentable substances, glucose, 1,2-ethanediol and 1,2-propanediol were checked as cosubstrates for the ferment. of glycerol by *Clostridium butyricum* and *Citrobacter freundii* with the aim of achieving a complete conversion of glycerol to 1,3-propanediol. Glucose was fermented by *C. butyricum* mainly to acetate, CO₂ and reducing equiv. in the presence of glycerol and contributed markedly to the 1,3-propanediol yield. However, because of relatively slow growth on glucose, complete conversion was not achieved. If the 2 glycerols were used as cosubstrates for glycerol formation, the 1,3-propanediol yield did not increase but diminished considerably, as they were converted to more reduced products, i.e., alcs. instead of acids. From 1,2-propanediol 2-propanol was formed in addn. to 1-propanol. The ratio of the propanols was dependent on

- the culture conditions.
- IT **50-99-7**, Glucose, biological studies
RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)
(fermn. of glycerol to 1,3-propanediol in relation to use of cosubstrates)
- IT **504-63-2P**, 1,3-Propanediol
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(fermn. of glycerol to 1,3-propanediol in relation to use of cosubstrates)
- L92 ANSWER 6 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1994:268328 HCAPLUS
DN 120:268328
TI Microbial production of 1,3-propanediol in Escherichia coli: a model system for metabolic engineering
AU Tong, I Teh
CS Univ. Wisconsin, madison, WI, USA
SO (1992) 436 pp. Avail.: Univ. Microfilms Int., Order No. DA9238579
From: Diss. Abstr. Int. B 1993, 54(2), 975
DT Dissertation
LA English
AB Unavailable
IT **504-63-2P**, 1,3-Propanediol
RL: PREP (Preparation)
(Microbial prodn. of 1,3-propanediol in Escherichia coli: a model system for metabolic engineering)
- L92 ANSWER 7 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1993:146193 HCAPLUS
DN 118:146193
TI Microbial production and downstream processing of 2,3-butanediol
AU Afschar, A. S.; Vaz Rossell, C. E.; Jonas, R.; Chanto, A. Quesada; Schaller, K.
CS GBF-Ges. Biotechnol. Forsch. mbH, Braunschweig, W-3300, Germany
SO J. Biotechnol. (1993), 27(3), 317-29
CODEN: JBITD4; ISSN: 0168-1656
DT Journal
LA English
AB In the direct conversion of starch by Bacillus polymyxa a max. of 38 g 2,3-butanediol/L is produced, with a yield of 0.28 g diol/g starch. By preliminary saccharification of starch and then cultivation with Klebsiella oxytoca, a 2,3-butanediol concn. of 99-100 g/L is achieved with a yield of 0.5 g diol/g starch. K. oxytoca converts high-test molasses to 2,3-butanediol in the same concn. and yield. The same diol concn., only at lower productivity, can also be achieved by conversion of black strap molasses, provided it contains <2% salts. 2,3-Butanediol can be sepd. from bioprocess media with very good results by salting out using anhyd. K2CO3. After precleaning the medium from molasses or saccharified starch conversion process, it was possible to sep. 94-96% of the 2,3-butanediol using 53-56% K2CO3. The concn. of the 2,3-butanediol in the resulting diol phase was 97%. Salting out can also be used to sep. other diols produced using micobiol. methods.
- IT **504-63-2P**, 1,3-Propanediol
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(manuf. of, with Klebsiella oxytoca)

- L92 ANSWER 8 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1993:56047 HCAPLUS
DN 118:56047
TI Growth temperature-dependent activity of glycerol dehydratase in
Escherichia coli expressing the Citrobacter freundii dha regulon
AU Daniel, Rolf; Gottschalk, Gerhard
CS Inst. Mikrobiol., Georg-August-Univ., Goettingen, Germany
SO FEMS Microbiol. Lett. (1992), 100(1-3), 281-5
CODEN: FMLED7; ISSN: 0378-1097
DT Journal
LA English
AB Using the cosmid pWE15, a genomic library of Citrobacter freundii
DNA in Escherichia coli ECL707 was prepd. and screened for glycerol
utilization. Six out of approx. 3000 clones were pos. One clone,
harboring the recombinant cosmid pRD1, expressed glycerol
dehydratase in high activity when grown at 28.degree. but not at
37.degree.. The growth temp. had little effect on the activity of
the other enzymes encoded by the dha regulon. When the
glycerol-contg. medium was supplemented with corrinoids, the
recombinant E. coli strain produced 1,3-propanediol in high amts. at
28.degree..
IT **9077-68-3**, Glycerol dehydratase
RL: BIOL (Biological study)
(gene for, of Citrobacter freundii, cloning and expression in
Escherichia coli of)
IT **504-63-2P**, 1,3-Propanediol
RL: PREP (Preparation)
(prodn. of, by recombinant Escherichia coli expressing glycerol
dehydratase of Citrobacter freundii)
- L92 ANSWER 9 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1992:446646 HCAPLUS
DN 117:46646
TI Enhancement of 1,3-propanediol production by cofermentation in
Escherichia coli expressing Klebsiella pneumoniae dha regulon genes
AU Tong, I Teh; Cameron, Douglas C.
CS Dep. Chem. Eng., Univ. Wisconsin, Madison, WI, 53706-1691, USA
SO Appl. Biochem. Biotechnol. (1992), 34-35, 149-59
CODEN: ABIBDL; ISSN: 0273-2289
DT Journal
LA English
AB 1,3-Propanediol (I) is an intermediate in chem. and polymer
synthesis. The genes of a biochem. pathway responsible for I
prodn., the dha regulon of K. pneumoniae, have been previously
expressed in E. coli. An anal. of the max. theor. yield of I from
glycerol indicates that the yield can be improved by the cofermn. of
sugars, provided that kinetic constraints are overcome. The yield
of I from glycerol was improved from 0.46 mol/mol with glycerol
alone to 0.63 mol/mol with glucose cofermn. and 0.55 mol/mol with
xylose cofermn. The engineered E. coli also provides a model system
for the study of metabolic pathway engineering.
IT **504-63-2P**, 1,3-Propanediol
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP
(Preparation)
(manuf. of, by cofermn. with recombinant Escherichia coli)
IT **50-99-7**, Glucose, biological studies
RL: BIOL (Biological study)
(propanediol manuf. by cofermn. of glycerol and, using

recombinant *Escherichia coli*)

- L92 ANSWER 10 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1992:82153 HCAPLUS
DN 116:82153
TI 1,3-Propanediol production by *Escherichia coli* expressing genes from the *Klebsiella pneumoniae* dha regulon
AU Tong, I Teh; Liao, Hans H.; Cameron, Douglas C.
CS Dep. Chem. Eng., Univ. Wisconsin, Madison, WI, 53706-1691, USA
SO Appl. Environ. Microbiol. (1991), 57(12), 3541-6
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English
AB The dha regulon in *K. pneumoniae* enables the organism to grow anaerobically on glycerol and produce 1,3-propanediol (1,3-PD). *E. coli*, which does not have a dha system, is unable to grow anaerobically on glycerol without an exogenous electron acceptor and does not produce 1,3-PD. A genomic library of *K. pneumoniae* ATCC 25955 constructed in *E. coli* AG1 was enriched for the ability to grow anaerobically on glycerol and dihydroxyacetone and was screened for the prodn. of 1,3-PD. The cosmid pTC1 (42.5 kb total with an 18.2-kb major insert) was isolated from a 1,3-PD-producing strain of *E. coli* and found to possess enzymic activities assocd. with 4 genes of the dha regulon: glycerol dehydratase (dhaB), 1,3-PD oxidoreductase (dhaRT), glycerol dehydrogenase (dhaD), and dihydroxyacetone kinase (dhaK). All 4 activities were inducible by the presence of glycerol. When *E. coli* AG1/pTC1 was grown on complex medium plus glycerol, the yield of 1,3-PD from glycerol was 0.46 mol/mol. The major fermn. byproducts were formate, acetate, and D-lactate. 1,3-PD is an intermediate in org. synthesis and polymer prodn. The 1,3-PD fermn. provides a useful model system for studying the interaction of a biochem. pathway in a foreign host and for developing strategies for metabolic pathway engineering.
- IT **504-63-2P**, 1,3-Propanediol
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(manuf. of, by *Escherichia coli* with *Klebsiella pneumoniae* dha regulon)
- IT **9028-14-2**, Glycerol dehydrogenase **9077-68-3**, Glycerol dehydratase **81611-70-3**, 1,3-Propanediol oxidoreductase
RL: BIOL (Biological study)
(*Klebsiella pneumoniae* dha regulon-encoded, expression in *Escherichia coli* of)
- L92 ANSWER 11 OF 14 HCAPLUS COPYRIGHT 1997 ACS
AN 1991:406951 HCAPLUS
DN 115:6951
TI Microbial production of diols and their recovery
AU Guenzel, B.; Afschar, A. S.; Biebl, H.; Tag, C.; Zeng, A.; Deckwer, W. D.
CS GBF-Ges. Biotechnol. Forsch. m.b.H., Braunschweig, 3300, Fed. Rep. Ger.
SO DECHEMA Biotechnol. Conf. (1990), 4(Pt. B, Lect. DECHEMA Annu. Meet. Biotechnol. 8th, 1990), 713-16
CODEN: DBCOEU
DT Journal
LA English
AB The microbial prodn. of 1,3-propanediol and 2,3-butanediol (BD) was

studied in several operation modes (batch, repeated-batch with cell-recycle, fed-batch, continuous culture, continuous culture with cell-recycle). The obtained productivities were 2-12 g/L-h. Final concns. of 30-.apprx.60 g/L were achieved. With molasses as C source, *Klebsiella oxytoca* (DSM 5175) exhibited the highest final BD concn., almost 100 g/L. To sep. the desired products, the adsorption of diols on activated C and hydrophobic zeolites was investigated. Both types of adsorbents were suitable to conc. diols from water as well as from fermn. broths.

IT **504-63-2P**, 1,3-Propanediol
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(manuf. of, by *Klebsiella pneumoniae*)

L92 ANSWER 12 OF 14 HCAPLUS COPYRIGHT 1997 ACS

AN 1990:550892 HCAPLUS

DN 113:150892

TI Process for the microbiological preparation of propane diol from glycerol

IN Gottschalk, Gerhard; Averhoff, Beate

PA Unilever N. V., Neth.; Unilever PLC

SO Eur. Pat. Appl., 7 pp.

CODEN: EPXXDW

PI EP 373230 A1 900620

DS R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE

AI EP 88-120718 881212

DT Patent

LA English

AB 1,3-Propanediol is manuf. from glycerol by *Citrobacter freundii*, preferably under anaerobic conditions, in the presence of a sugar (e.g. glucose). *C. freundii* was grown in a defined mineral salts medium contg. glycerol 880 mmol/L under ammonium limitation (37.degree., 20 h) and the cells harvested are resuspended in a buffered glycerol 240 mmol/L contg. glucose 42 mmol/L and incubated at 37.degree. under N. Conversion of glycerol to 1,3-propanediol was 91% after .apprx.48 h.

IT **50-99-7**, Glucose, biological studies

RL: BIOL (Biological study)

(as hydrogen donor in propanediol manuf. from glycerol with *Citrobacter freundii*)

IT **504-63-2P**, 1,3-Propanediol

RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)

(manuf. of, from glycerol, with *Citrobacter freundii*)

L92 ANSWER 13 OF 14 HCAPLUS COPYRIGHT 1997 ACS

AN 1990:97023 HCAPLUS

DN 112:97023

TI Improved manufacture of 1,3-propanediol from glycerin with *Klebsiclla pneumoniae* using cobalt salts and fermentable sugars

IN Tran-Dinh, Khue; Hill, Frank F.

PA Huels A.-G., Fed. Rep. Ger.

SO Ger. Offen., 3 pp.

CODEN: GWXXBX

PI DE 3734764 A1 890503

AI DE 87-3734764 871014

DT Patent

LA German

AB *K. pneumoniae* cultured in a medium contg. Co salts and fermentable

sugars produce more 1,3-propanediol from glycerin than prior art fermn. processes. Thus, strain DSM 4270 was cultured on a medium contg. glycerin 50, glucose 50 g/L (added after the 1st 7 h culture), and CoCl_2 2.5 μM for 72 h. Propanediol 63 g/100 g glycerin was produced.

IT **504-63-2P**, 1,3-Propanediol

RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)

(manuf. of, with *Klebsiella pneumoniae*, effect of cobalt salt and sugar on)

IT **50-99-7**, Glucose, biological studies

RL: BIOL (Biological study)

(propanediol manuf. with *Klebsiella pneumoniae* in presence of cobalt salt and)

L92 ANSWER 14 OF 14 HCAPLUS COPYRIGHT 1997 ACS

AN 1968:497025 HCAPLUS

DN 69:97025

TI Micromethods for studying the structure of carbohydrates based on sodium periodate oxidation

AU Kudryashov, L. I.; Chlenov, M. A.; Smirnov, P. N.; Kovacheva, S. D.

CS Inst. Khim. Prir. Soedin., Moscow, USSR

SO Zh. Obshch. Khim. (1968), 38(1), 74-9

CODEN: ZOKHA4

DT Journal

LA Russian

AB Fragments formed by periodate oxidn. of 3-5 mg. samples of deoxy aldoses and deoxy diketoses were identified by gas-liq. chromatog., polarography and spectrophotometry. For detn. of consumption of NaIO_4 a precise amt. of standard soln. is used and the consumption is followed by spectrophotometry at 223 m μ , after construction of a calibration curve. HCO_2H estn. was done by treating the oxidized sample with a known amt. $(\text{CH}_2\text{OH})_2$, keeping the mixt. 10 min. and titrating in H_2O with standard NaOH ; alternatively the sample after oxidn. was treated with a known amt. of $(\text{CH}_2\text{OH})_2$, then with KI and H_2O and rapidly with excess $\text{Na}_2\text{S}_2\text{O}_3$, followed by titrn. of this with I with starch indicator. For detn. of CH_2O after periodate oxidn. the sample was dild. with H_2O , treated with aq. $\text{Pb}(\text{OAc})_2$, and centrifuged, the clear soln. treated with aq. K_2CO_3 , centrifuged, and the soln. polarographed or examd. spectrophotometrically. The removal of IO_4^- and IO_3^- ion excess by addn. of $\text{Ba}(\text{OAc})_2$ was not satisfactory, as a very large excess of the latter was necessary, but $\text{Pb}(\text{OAc})_2$ gave excellent results after removal of its moderate excess by means of K_2CO_3 . The polarographic estn. of CH_2O in the residual soln. may be augmented by addn. of dimedone which suppresses the polarographic wave of CH_2O , thus distinguishing this from other aldehydes. In a typical run 5 mg. sugar was treated with 0.8 ml. 0.04M NaIO_4 10 hrs., treated with 0.06 ml. satd. $\text{Pb}(\text{OAc})_2$ and 0.06 ml. 10% K_2SO_3 , the centrifugate from this kept 6 hrs. with 10 mg. NaBH_4 , treated with the H-form of Amberlite IR120 resin, the filtrate from this evapd. with MeOH , and the resulting alc. mixt. treated with Ac_2O and a trace of 80% HClO_4 0.5 hr. at 80.degree., evapd. with MeOH , and subjected to vapor chromatog.

IT **504-63-2P**

RL: PREP (Preparation)

(from oxidn. of D-glucose derivs. by sodium periodate)

IT **50-99-7**, reactions

RL: RCT (Reactant)

(oxidn. of, by sodium periodate)

=> fil biosis

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CAS REGISTRY NUMBERS (R) LAST ADDED: 10 December 1997 (971210/UP)

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(FILE 'BIOSIS' ENTERED AT 07:41:53 ON 11 DEC 1997)

L106	96 S L9
L107	145816 S L22,L19,L44,L31
L108	16 S L106 AND L107
L109	11 S L108 AND 56-81-5
L110	5 S L108 NOT L109
L111	2 S L110 NOT GLYCEROL
L112	1 S L111 NOT MICE/TI
L113	38 S 39007/CC AND L106
L114	29 S L113 NOT L108
L115	25 S L114 AND 56-81-5
L116	4 S L114 NOT L115
L117	1 S L116 NOT GLYCEROL

=> d all

L117 ANSWER 1 OF 1 BIOSIS COPYRIGHT 1997 BIOSIS
AN 96:253262 BIOSIS
DN 98809391
TI Specific gene deletion technique and applications in the production
of 1,3-propanediol from Escherichia coli.
AU Shaw A J; Cameron D C
CS Dep. Chem. Eng., Univ. Wis.-Madison, Madison, WI 53706, USA
SO 211th American Chemical Society National Meeting, New Orleans,
Louisiana, USA, March 24-28, 1996. Abstracts of Papers American
Chemical Society 211 (1-2). 1996. BIOT 154. ISSN: 0065-7727
DT Conference
LA English
PR Biological Abstracts/RRM Vol. 048 Iss. 006 Ref. 097860
ST MEETING ABSTRACT; ESCHERICHIA COLI; BIOTECHNOLOGY; DNA; GENETIC
ENGINEERING; METABOLIC ENGINEERING; GENOME; DELETIONS; MUTATIONS;
RECOMBINATION; PRODUCT YIELD
RN 504-63-2 (1 3-PROPANEDIOL)
CC General Biology-Symposia, Transactions and Proceedings of
Conferences, Congresses, Review Annuals 00520
Comparative Biochemistry, General *10010
Biochemical Methods-General *10050
Biochemical Methods-Nucleic Acids, Purines and Pyrimidines *10052
Biochemical Studies-General *10060
Biochemical Studies-Nucleic Acids, Purines and Pyrimidines *10062
Replication, Transcription, Translation *10300

Biophysics-Molecular Properties and Macromolecules *10506
 Metabolism-General Metabolism; Metabolic Pathways *13002
 Metabolism-Energy and Respiratory Metabolism *13003
 Metabolism-Nucleic Acids, Purines and Pyrimidines *13014
 Physiology and Biochemistry of Bacteria *31000
 Genetics of Bacteria and Viruses *31500
 Microbiological Apparatus, Methods and Media *32000
**Food and Industrial Microbiology-Biosynthesis, Bioassay and
 Fermentation *39007**

BC Enterobacteriaceae 06702

=> fil wpids

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FILE LAST UPDATED: 09 DEC 97 <971209/UP>
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 L1 (2782)SEA FILE=WPIDS ABB=ON PLU=ON PROPANEDIOL OR PROPANE DIO
 L2 (2856)SEA FILE=WPIDS ABB=ON PLU=ON PROPANE DI OL OR L1
 L3 (210)SEA FILE=WPIDS ABB=ON PLU=ON PROPANE (W)1 (W) 3 (W) (DI
 L4 2937 SEA FILE=WPIDS ABB=ON PLU=ON (L2 OR L3)

 L5 1633 S 1 () 3 () (PROPANEDIOL OR PROPANE DIOL OR PROPANE DI OL
 L6 210 S PROPANE () 1 () 3 () (DIOL OR DI OL)
 L7 1821 S L5,L6
 L8 71 S L7 AND (E10-E04B)/MC
 L9 373 SEA L7 AND M720/M0,M1,M2,M3,M4,M5,M6
 L10 375 S L8,L9
 L11 50 S L10 AND D16/DC
 L12 28 SEA L10 AND Q233/M0,M1,M2,M3,M4,M5,M6
 L13 22 SEA L10 AND (N131 OR N132)/M0,M1,M2,M3,M4,M5,M6
 L14 16 SEA L10 AND N134/M0,M1,M2,M3,M4,M5,M6
 L15 3 SEA L10 AND N135/M0,M1,M2,M3,M4,M5,M6
 L16 38 S L11 AND L12-L15
 L17 12 S L11 NOT L16
 L18 2 S L17 AND DERIVS/TI
 L19 10 S L17 NOT L18

L20 127 S E17/DC AND L10
 L21 16 S L11 AND L20
 L22 16 S L20 AND L12-L15
 L23 16 S L21,L22
 L24 23 S L10 AND GLYCEROL
 L25 2 S L10 AND GLYCERIN
 L26 25 S L24,L25
 L27 9 S L10 AND GLYCERINE
 L28 6 S L27 NOT L26
 L29 31 S L26,L27
 L30 27 S L16 NOT L29
 L31 4 S L30 AND (CANDIDA OR KLEBSIELLA)/TI
 L32 2 S L31 NOT (RUGOSA OR ENANTIOMER)/TI
 L33 4 S L18,L32
 L34 0 S L23 NOT L16,L26
 L35 6 S L16 AND (CANDIDA OR KLEBS?)/TI
 L36 4 S L35 NOT (GLYCEROL OR GLYCERIN?)
 L37 2 S L36 NOT (RUGOSA OR ENANTIOMER)/TI
 L38 2 S L32,L37
 L39 4 S L18,L38
 L40 3 S L39 NOT LAFFEND ?/AU
 L41 81 SEA L10 AND Q110/M0,M1,M2,M3,M4,M5,M6
 L42 39 SEA L41 AND (H402 AND H482 AND M313)/M0,M1,M2,M3,M4,M5,M6

 L43 31 S L42 AND E17/DC
 L44 5 S L42 AND D16/DC
 L45 31 S L43,L44
 L46 2 S L45 AND AEROBIC?
 L47 0 S L46 NOT GLYCER?
 L48 4 S L41 AND KLEBS?
 L49 3 S L48 NOT L39
 L50 0 S L49 NOT GLYCER?
 L51 1 S L41 AND GLUCOSE
 L52 1 SEA L41 AND "L814"/M0,M1,M2,M3,M4,M5,M6
 L53 1 SEA L41 AND L8?/M0,M1,M2,M3,M4,M5,M6
 L54 2 S L51-L53
 L55 2 S ?SACCHARID? AND L41
 L56 4 S ?SACCHARID? AND L10
 L57 4 S L55,L56 NOT L40
 L58 2 S L57 NOT GLYCER?

FILE 'WPIDS' ENTERED AT 08:56:41 ON 11 DEC 1997

=> d 140 1-3 bib abs

L40 ANSWER 1 OF 3 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD
 AN 93-308343 [39] WPIDS
 DNC C93-136760
 TI Prepn. of (R)-1,3-propane diol
 - by introducing microbe e.g. *Candida* sp. into culture to
 reduce 1-phenyl-propane 3-ol-1-one.
 DC B05 D16 E14
 PA (AJIN) AJINOMOTO KK
 CYC 1
 PI JP 05219984 A 930831 (9339)* 4 pp
 ADT JP 05219984 A JP 92-22466 920207
 PRAI JP 92-22466 920207
 AN 93-308343 [39] WPIDS

AB JP05219984 A UPAB: 931123

A culture, microbial cells sepd. from the culture or the cell treated substance that can asymmetrically reduce 1-phenyl-propane-3-ol-1-one to (R)-1-phenyl-1,3-propane diol, is reacted on 1-phenylpropane-3-ol-1-one, then produced (R)-1-phenyl-1,3-propane diol is collected.

More specifically, the microbe is Candida sp., Trichosporon sp., or Aspergillus sp.

USE/ADVANTAGE - High optical purity (R)-1-phenyl-1,3-propane diol can be prep'd in high yield.

In an example, each 3 ml of medium (glucose 2.0%, (NH₄)₂SO₄ 0.5%, K₂HPO₄ 0.3%, KH₂PO₄ 0.1%, MgSO₄·7H₂O 0.05%, FeSO₄·7H₂O 0.001%, MnSO₄·4H₂O 0.001%, yeast extract 1.0%, polypeptone 1.0%; pH 7.0) was charged into a test tube. After heat sterilisation, one loop of microbial cells were inoculated, and shaking cultured at 30degC for 24 - 48 hours. To the culturing soln., 3 mg 1-phenyl-1-propane-3-ol-1-one and 15 mg glucose were added, and cultured at 30degC for more 24 hours. After the reaction, the soln. was diluted with ethanol, and centrifuged. The supernatant was analysed. Yield (%), absolute configuration and optical purity (% e.e) were 6.0, R, 86 (Trichosporon fermentans IFO 1199).
Dwg.0/0

L40 ANSWER 2 OF 3 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD

AN 74-05763V [04] WPIDS

TI **Propane-1,3-diol**

derivs - from culture contg Corynebacterium pseudodiphtheriticum and linear paraffins.

DC B05 D16

PA (KYOW) KYOWA HAKKO KOGYO KK

CYC 1

PI DE 2166092 B 740117 (7404)*

PRAI JP 70-35902 700428; JP 70-112463 701217

***** DATA NOT AVAILABLE FOR THIS ACCESSION NUMBER

L40 ANSWER 3 OF 3 WPIDS COPYRIGHT 1997 DERWENT INFORMATION LTD

AN 74-05761V [04] WPIDS

TI **Propane-1,3-diol**

derivs - by propagation of microorganisms in presence of linear paraffins.

DC B05 D16

PA (KYOW) KYOWA HAKKO KOGYO KK

CYC 1

PI DE 2166090 B 740117 (7404)*

PRAI JP 70-35902 700428; JP 70-112463 701217

***** DATA NOT AVAILABLE FOR THIS ACCESSION NUMBER